Asterisk PRI Passive Call Recording

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Agenda

- **Why recording?.**

- **Asterisk recording.**

- **What is line tapping?.**

- **PRI tapping in Asterisk.**

- **Future of tapping in Asterisk.**

- **Conclusion.**

Is call recording legal?

- **Ask a lawyer.**

Why Recording?

- Enhance customer service.

- Legal liability.
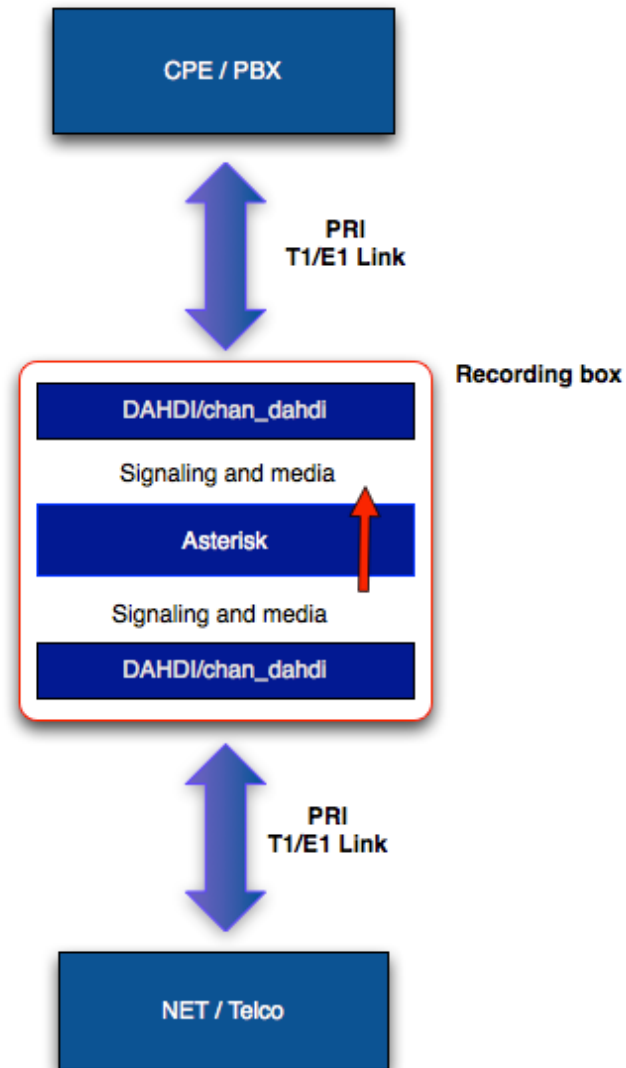
- Compliance with industry regulations.

- Security.

Asterisk Recording.

- **Monitor, MixMonitor or Record applications.**

- **Sends files to /var/spool/asterisk/monitor**

- **Recording in any supported format (formats/ directory).**

- **Experimental Xorcom / Tzafrir RTP monitoring and Orecx recording server. (http://svn.digium.com/svn/asterisk/team/ tzafrir/monitor-rtp)**

Asterisk Recording.

- **Asterisk must be in signaling and media path.**

- **It can be risky.**

- **No redundancy.**

- **Predictive dialing on CPE/PBX may make it unsuitable.**

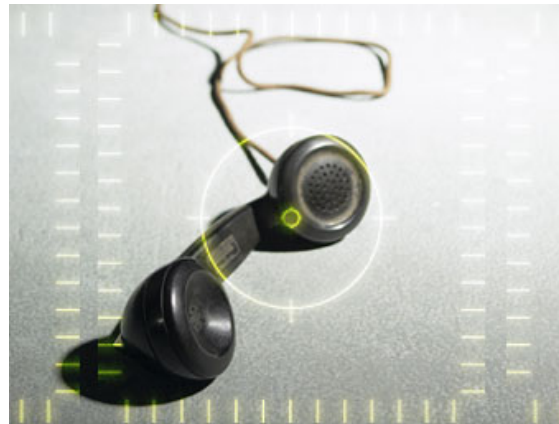- **Not plug and play. (config req.)**
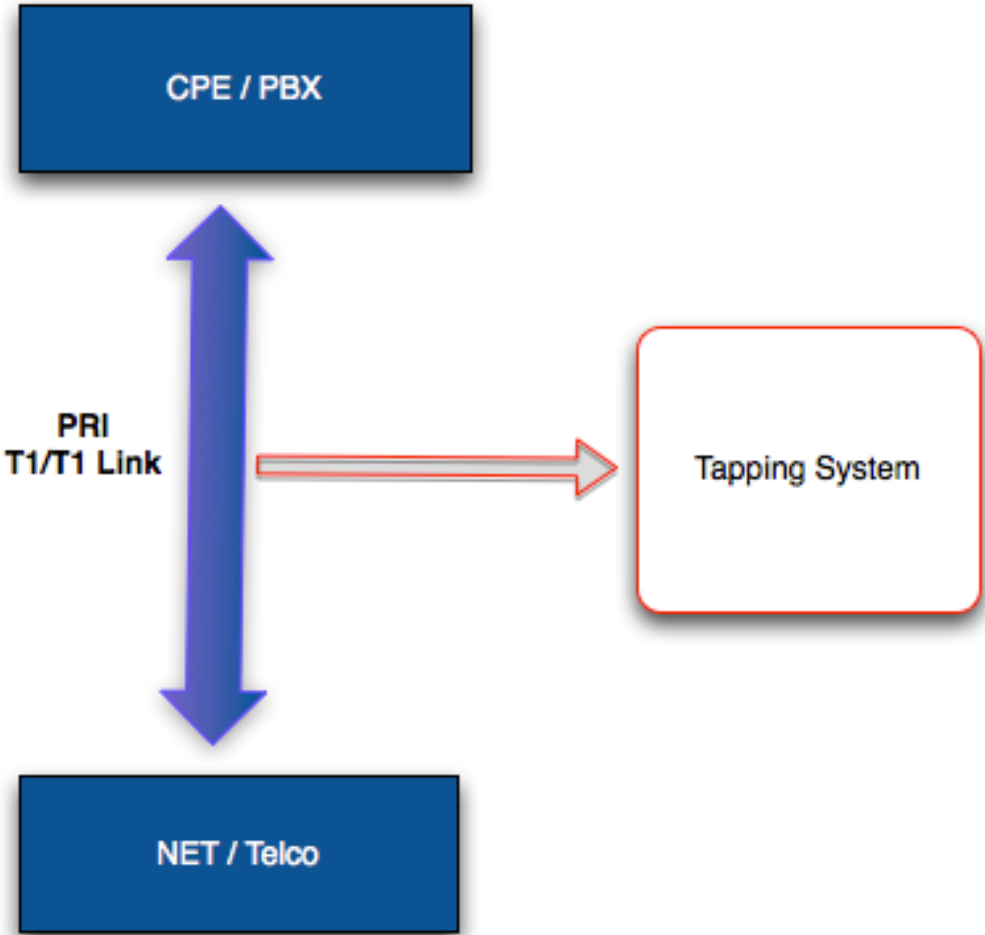
Telephone Line tapping.

Telephone Line tapping.

- Also known as wire-tapping.

- Passive monitoring of the telephone line.

- Legal wiretapping == Lawful interception.

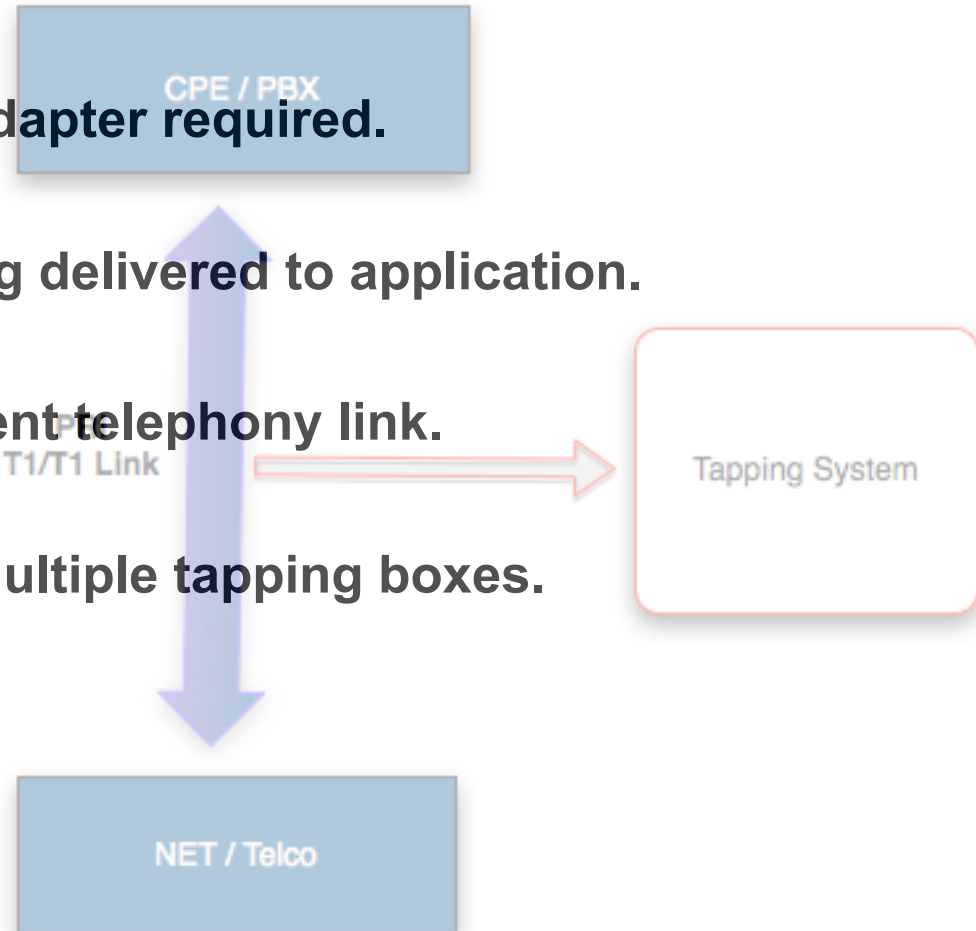- Equivalent to monitor network traffic in a switch.

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PRI Tapping

CPE / PBX

PRI
T1/T1 Link

Tapping System

NET / Telco

PRI Tapping.

- **T1/E1 tap connection adapter required.**

- **Raw voice and signaling delivered to application.**

- **Zero disruption of current telephony link.**

- **Redundancy through multiple tapping boxes.**

CPE / PBX

T1/T1 Link

Tapping System

NET / Telco

PRI Tapping Typical Uses

- **Call logging (if you only need CDR).**

- **Call recording (both media and CDR).**

- **Inbound/Outbound call centers live monitoring.**

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PRI Tapping Connections
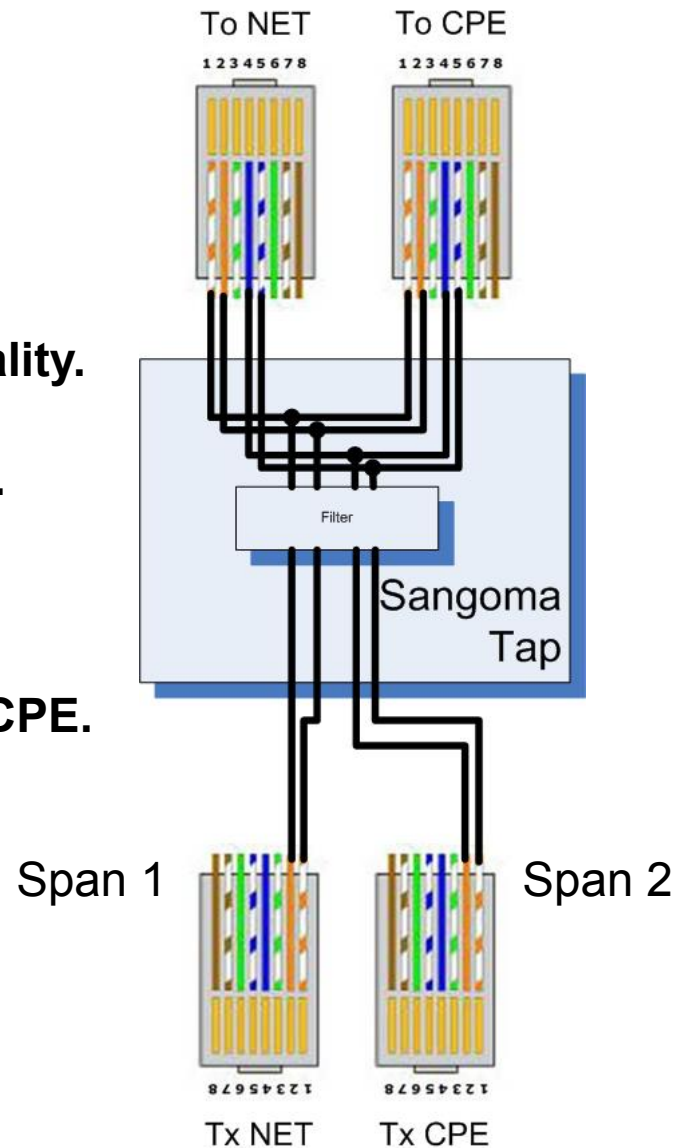
- **Connections between A102 and tapping box.**

PRI Tapping Connections

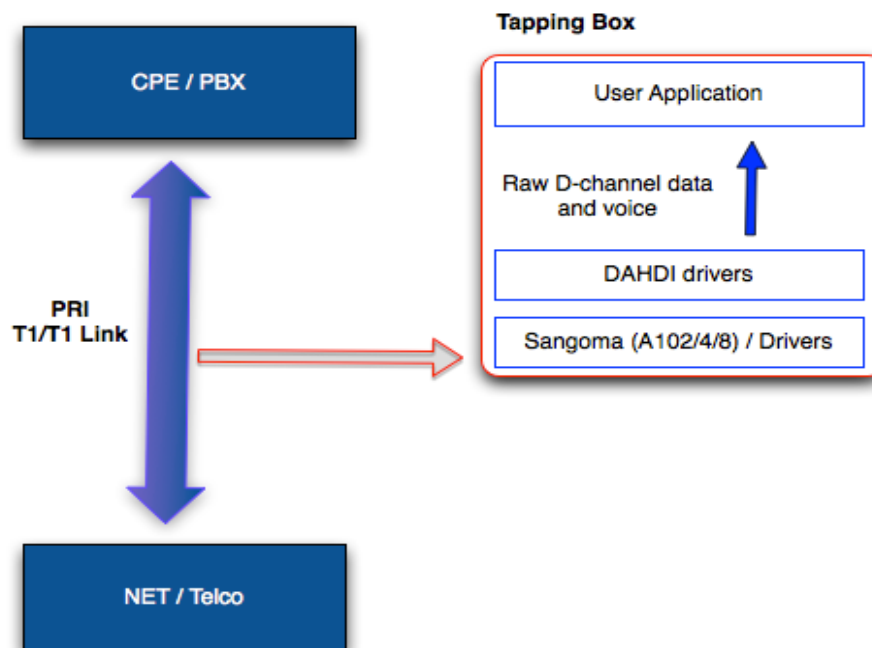- **Connections between A102 and tapping box.**

PRI Tapping Connections

- **2 ports needed per link.**

- **Tapping box (PN 633) ensures quality.**

- **High impedance mode in the card.**

- **Any Tx data is dropped.**

- **One port for Tx NET, other for Tx CPE.**

To NET   To CPE
12345678 12345678

Filter

Sangoma Tap

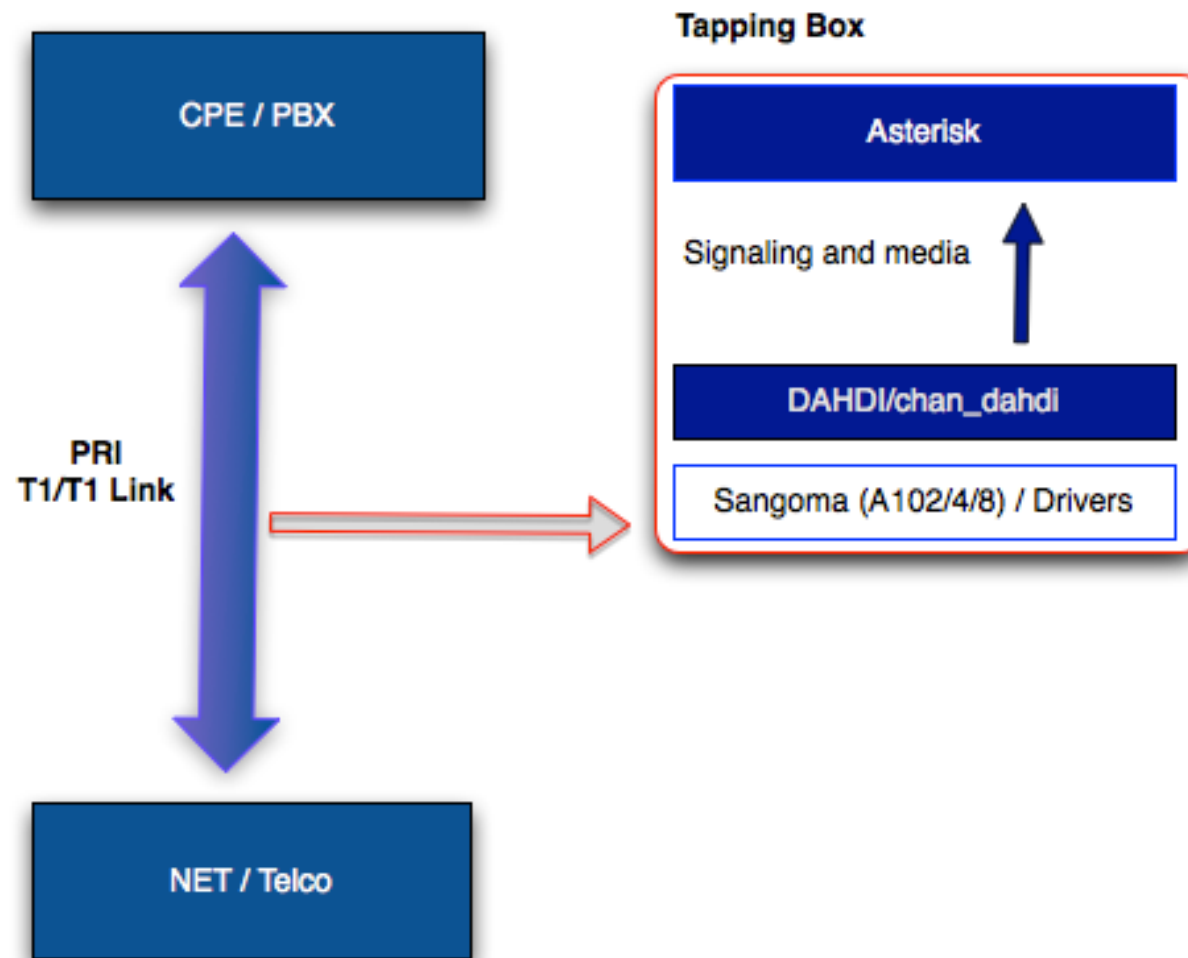Span 1   Span 2

Tx NET   Tx CPE

PRI Raw Tapping

- **Raw tapping can be achieved with Wanpipemon (pcap file).**

- **Raw access to D-channel messages through DAHDI channels.**

- **Voice from NET in span 1, voice from CPE in span 2. Application has to do the audio mixing and ISDN message-matching.**
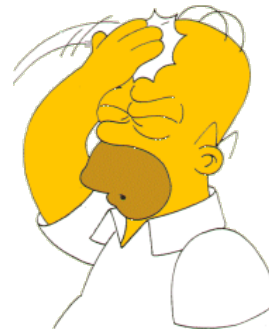
Asterisk PRI Tapping

CPE / PBX

Tapping Box

Asterisk

Signaling and media

DAHDI/chan_dahdi

Sangoma (A102/4/8) / Drivers

PRI
T1/T1 Link

NET / Telco

Asterisk PRI Tapping

- **chan_dahdi matches signaling messages from different spans.**

- **chan_dahdi creates an Asterisk channel and provide the mixed audio to the Asterisk core.**

- **Asterisk see the call as a regular incoming call.**

    - Smells like a call.

    - Tastes like a call.

    - But brother, it **ain't** a regular call!

Asterisk PRI Tapping

- **You can use regular Asterisk dial plan logic to do recording, logging or execute any other supported Asterisk application on the tapped call.**

    – exten => _X.,1,Answer()
    – exten => _X.,n,Record(…)

- **Other applications, like ChanSpy() can be used for live monitoring.**

- **Any application doing only media writing, won't fail, but won't do anything useful either.**

- **Any call control operation (Answer, Ring, Hang Up) is local only, does not affect tapped call, since there is no Tx enabled.**

Asterisk PRI Tapping Installation

- **Uses passive version of libpri for message decoding.**

    - http://svn.digium.com/svn/libpri/team/moy/tap-1.4/

- **Decodes IE's on SETUP, PROCEED, ALERTING, CONNECT, DISCONNECT, etc**

- **chan_dahdi required changes to drop data, match peer tapping spans and mix audio.**

    - http://svn.digium.com/svn/asterisk/team/moy/dahdi-tap-1.6.2
    - http://svn.digium.com/svn/asterisk/team/moy/dahdi-tap-trunk

- **Need your feedback to integrate into Asterisk trunk!**

Wanpipe Configuration

- **Interface in TDM_VOICE mode.**

- **TE_HIGHIMPEDANCE = YES**

- **Sample configs available:**

  – at http://wiki.sangoma.com/sangoma-tap-system

DAHDI Configuration (system.conf)

- **Regular T1/E1 configuration parameters for 2 spans (or more).**

- **Remember you need 2 spans per T1/E1 link.**

- **Sample configuration for E1 tapping:**

```
# Rx span
span=1,1,0,ccs,hdb3
bchan=1-15,17-31
hardhdlc=16

# Tx span
span=2,2,0,ccs,hdb3
bchan=32-46,48-62
hardhdlc=47
```

Asterisk PRI tapping Configuration

- **chan_dahdi.conf**

    switchtype=national

    context=from-tapped-line

    signalling=pri_cpe

    # passive=yes

    channel => 1-15,17-31

    channel => 32-46,48-62

Asterisk PRI Tapping Key Points

- **Two spans are required per tapped trunk.**

- **No outgoing calls can be placed in those circuits.**

- **No media writing (only media reading).**

- **Restarting the tapping server or Asterisk is safe.**

- **Exported PRI fields:**

    - Caller Name.
    - Caller Number.
    - Called Number.

Asterisk PRI Tapping Limitations

- **No NFAS support currently. (Although easy to add).**

- **Not every message IE is recorded.**

- **Non-Sangoma boards may require work on the driver. Try it!**

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Asterisk Tapping Future

- **Analog tapping in the works.**

- **Extending the concept to network protocols (ie: SIP)**

- **Do we need chan_tap?**

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Conclusion

- You can build now a passive call recorder/logger easily.

- Tapped system can be any PRI switch/telco.

- Available in API mode or using standard Asterisk/DADHI integration.

- Extensible through regular dial plan logic, AGI scripts etc.

References

- http://wiki.sangoma.com/sangoma-tap-system

- http://wiki.sangoma.com/wanpipe-api-freetdm

- http://wiki.sangoma.com/wanpipe-freeswitch

Thank You!

Questions and Comments?

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